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Docket Number: SWEIP101US

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

In re patent of:

Inventor(s) Bayard J. Osthaus

Art Unit: 1775

Patent No.: 6,933,443

Examiner: Cathy Fong Fong Lam

Issue Date: August 23, 2005

Serial No.: 10/766,352

Title: METHOD FOR BONDING CERAMIC TO COPPER, WITHOUT  
CREATING A BOW IN THE COPPER

**Certificate**

**OCT 04 2005**

Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 2231301450

**of Correction**

**REQUEST FOR CERTIFICATE OF CORRECTION**  
**OF PATENT FOR PTO'S MISTAKE**

Sir:

1. It is noted that an error appears in this patent of a clerical, typographical; and minor nature or character as more fully described below, in Appendix A, and occurred in good faith and correction thereof does not involve such changes in the patent as would constitute new matter or would require reexamination and a certificate of correction is requested.

2. Attached hereto is form PTO-1050 suitable for printing. Also attached are documents which substantiates that the error incurred is attributed solely to the USPTO. One document is the patent, column 10 in claim 44 and the second is in the Reply to an Office Action mailed to the PTO on January 12, 2005, where the claim was amended.

3. The exact page and line number where the error (or lack of error, in the event of a mistake by the Patent Office) occurs in the application file are:

Column 10, line 53

**OCT 5 2005**

4. **No fee is believed to be necessary.**

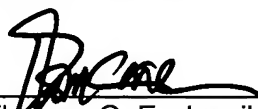
However, if the errors are found to be that of the Applicant's, please deduct the fee as required by 37 CFR 1.20(a), and please charge Deposit Account No. 50-1733 the sum of \$100.00.

5. Attached hereto is Appendix A which sets for the reasons **Applicants believe that no fee is due.**

6. Please send the Certificate to

Name: Thomas G. Eschweiler  
Address Eschweiler & Associates, LLC  
National City Bank Building  
629 Euclid Avenue, Suite 1210  
Cleveland, Ohio 44114

Date: September 27, 2005

  
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CERTIFICATE OF MAILING (37 CFR 1.8(a))

I hereby certify that this paper (along with any paper referred to as being attached or enclosed) is being deposited with the United States Postal Service on the date shown below with sufficient postage as first class mail in an envelope addressed to: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

Date: September 27, 2005

  
\_\_\_\_\_  
Christine Gillroy

OCT 5 2005



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**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

Patent No.: 6,933,443  
Issued: August 23, 2005  
Patentee: Bayard J. Osthaus  
Title: METHOD FOR BONDING CERAMIC TO COPPER, WITHOUT CREATING A BOW IN THE COPPER

**APPENDIX A**

**The above-captioned Letters Patent contains a typographical error made by the Patent Office. Specifically, the error is as follows:**

Column 10, line 53: Please replace the word "means" with the word --board--.

**This error is typographical in nature and was committed by the Patent Office.** Furthermore, correction of this error does not require such changes in the patent as would constitute new matter or would require re-examination. Therefore, a certificate of correction is respectfully requested.

For this reason, it is believed that the revisions required by the Certificate of Correction is **due to an error made by the Patent Office**. As such, the Patentee is entitled to a Certificate of Correction under 37 C.F.R. §1.322, and **no fee is believed due**.

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**UNITED STATES PATENT AND TRADEMARK OFFICE  
CERTIFICATE OF CORRECTION**Page 1 of 1

PATENT NO. : 6,933,443  
APPLICATION NO. : 10/766,352  
ISSUE DATE : August 23, 2005  
INVENTOR(S) : Bayard J. Osthaus

It is certified that an error appears or errors appear in the above-identified patent and that said Letters Patent is hereby corrected as shown below:

Column 10, line 53: Please replace the word "means" with the word --board--.

**MAILING ADDRESS OF SENDER (Please do not use customer number below):**

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This collection of information is required by 37 CFR 1.322, 1.323, and 1.324. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 1.0 hour to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Attention Certificate of Corrections Branch, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

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40. (Original) The device of claim 38, wherein a thickness of the one or more metal coatings is approximately 0.15 microinches.

41. (Original) The device of claim 23, wherein the epoxy layer is electrically conductive.

42. (Original) The device of claim 41, wherein the epoxy layer comprises silver or a silver alloy.

43. (Original) The device of claim 23, wherein the epoxy has a modulus of elasticity of approximately 80 MPa.

44. (Original) The device of claim 23, wherein the circuit board comprises one or more secondary cavities therein, wherein the one or more secondary structures are operable to generally reside within the respective one or more secondary cavities when the base is fixedly coupled to the circuit board.

45-52. (Cancelled)

53. (Currently Amended) An electronic device, comprising:  
a base ~~means~~ having a channel and a flange ~~means~~ defined therein;  
a circuit board ~~means~~, wherein the base and the circuit board have dissimilar coefficients of thermal expansion; and

an adhesive ~~means~~, wherein the base ~~means~~ and circuit board ~~means~~ are fixedly coupled to one another by the adhesive, and wherein the flange ~~means~~ is operable to substantially maintain a planarity of the circuit board ~~means~~ and the base ~~means~~ during a thermal expansion or contraction of one or more of the base ~~means~~ and the circuit board ~~means~~.

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12. The device of claim 1, wherein the base is comprised of copper or a copper alloy.

13. The device of claim 12, wherein the base is comprised of an alloy of copper and zirconium.

14. The device of claim 1, wherein the base is coated with one or more metal coatings.

15. The device of claim 14, wherein the one or more metal coatings comprise one or more of gold or nickel.

16. The device of claim 14, wherein a thickness of the one or more metal coatings is approximately 0.15 microinches.

17. The device of claim 1, wherein the adhesive layer is electrically conductive.

18. The device of claim 17, wherein the adhesive layer comprises silver or a silver alloy.

19. The device of claim 1, wherein the adhesive layer has a modulus of elasticity of about 80 MPa.

20. The device of claim 1, wherein the adhesive layer comprises a thermal-set epoxy.

21. The device of claim 1, wherein the base further comprises one or more secondary structures which extend generally perpendicularly to the first surface, and wherein the circuit board comprises one or more secondary cavities therein, wherein the one or more secondary structures are operable to generally reside within the respective one or more secondary cavities when the base is fixedly coupled to the circuit board.

22. An electronic device, comprising:

a metal base comprising a channel portion having a substantially planar first surface, the base further comprising a pair of flanges and one or more secondary structures which extend outwardly from the first surface, wherein a pair of flanges extend along a length of the first surface and are separated by a predetermined width, therein defining a channel therebetween;

a ceramic circuit board having a substantially planar second surface which is substantially parallel to the first surface, wherein the circuit board is generally defined by a length and a width, wherein the length and width of the circuit board are smaller than the respective length and width of the channel, wherein the circuit board resides within the channel; and

an epoxy layer generally residing between the first surface and the second surface, wherein the epoxy layer fixedly couples the first surface of the base to the second surface of the circuit board within the channel,

wherein the pair of flanges are operable to substantially maintain the planarity of the first surface and the second surface during a thermal expansion or contraction of one or more of the base and the circuit board.

23. The device of claim 22, wherein the pair of flanges and the one or more secondary structures extend generally perpendicularly to the first surface.

24. The device of claim 22, wherein the circuit board further comprises a third surface, wherein a thickness of the circuit board is measured between the second surface and the third surface, and wherein at least one of the pair of flanges extends a first distance from the first surface, wherein the first distance is associated with the thickness of the circuit board.

25. The device of claim 24, wherein the first distance is greater than or approximately equal to the thickness of the circuit board.

26. The device of claim 24, wherein first distance is greater than or approximately equal to a sum of the thickness of the circuit board and a thickness of the epoxy layer.

27. The device of claim 24, wherein the pair of flanges extend the first distance from the first surface.

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28. The device of claim 24, wherein the base further comprises a bottom surface, wherein a second distance is measured between the first surface and the bottom surface of the base, and wherein the second distance is further associated with the thickness of the circuit board.

29. The device of claim 28, wherein the second distance is less than five times the thickness of the circuit board.

30. The device of claim 28, wherein the bottom surface of the base is generally parallel to the first surface.

31. The device of claim 22, wherein the metal base is a contiguous piece of metal.

32. The device of claim 22, wherein the pair of flanges extend along a length of the channel, wherein the length of the channel is greater than or approximately equal to a length of the circuit board.

33. The device of claim 22, wherein the base is associated with a first coefficient of thermal expansion and the circuit board is associated with a second coefficient of thermal expansion, wherein the first coefficient of thermal expansion and the second coefficient of thermal expansion are dissimilar.

34. The device of claim 33, wherein the first coefficient of thermal expansion is greater than the second coefficient of thermal expansion.

35. The device of claim 22, wherein the base is comprised of copper or a copper alloy.

36. The device of claim 22, wherein the base is comprised of an alloy of copper and zirconium.

37. The device of claim 22, wherein the base is coated with one or more metal coatings.

38. The device of claim 37, wherein the one or more metal coatings comprise one or more of gold or nickel.

39. The device of claim 37, wherein a thickness of the one or more metal coatings is approximately 0.15 microinches.

40. The device of claim 22, wherein the epoxy layer is electrically conductive.

41. The device of claim 40, wherein the epoxy layer comprises silver or a silver alloy.

42. The device of claim 22, wherein the epoxy has a modulus of elasticity of approximately 80 MPa.

43. The device of claim 22, wherein the circuit board comprises one or more secondary cavities therein, wherein the one or more secondary structures are operable to generally reside within the respective one or more secondary cavities when the base is fixedly coupled to the circuit board.

44. An electronic device, comprising:  
a base having a channel and a flange defined therein;  
a circuit board, wherein the base and the circuit board have dissimilar coefficients of thermal expansion; and  
an adhesive, wherein the base and circuit board are fixedly coupled to one another by the adhesive, and wherein the flange is operable to substantially maintain a planarity of the circuit means and the base during a thermal expansion or contraction of one or more of the base and the circuit board.

45. The device of claim 44, wherein the base comprises one or more metals or a metal alloy.

46. The device of claim 44, wherein the circuit board comprises a ceramic circuit board having a low coefficient of thermal expansion.

47. The device of claim 44, wherein the flange comprises at least two flanges, wherein the channel is defined therebetween.

48. The device of claim 47, wherein a size of the channel is associated with a size of the circuit board.

49. The device of claim 44, wherein the adhesive comprises an epoxy having a high modulus of elasticity.